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ABSTRACT

There is no one universal definition of the term "computer literacy," which, in fact, is used so generally that people often preface references to microcomputers in education with their own definitions of computer literacy. The term is organized semantically in a variety of ways, and central to this semantic organization is a problem of deciding how to integrate "knowledge of," "knowledge about," and "knowledge through" the computer into the conceptual organization of knowledge in general. Efforts to introduce the microcomputer into the curriculum are encouraging careful discussions of just exactly what computer literacy is, can be, or should be. Until recently, "literacy" referred to the ability to read and write and to being well-educated or knowledgeable. The meaning of "well-educated" may have altered, however, to encompass knowledge of computers. It is held that any rhetorical confusion resulting from attempts to deal with this phenomenon is natural, insightful, and necessary to maintain the dialogue that will develop our understanding of the microcomputer's impact on knowledge and education. A chart illustrates the distribution of references to computer literacy in educational literature, and a 20-item reference list is included. (LMM)

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It is not uncommon to find computer literacy italicized, underlined, bold, put between quotation marks, or otherwise highlighted in educational literature. This practice tends to isolate the phrase or to imply it is ambiguous, tentative, or even questionable. Certainly it suggests the author is about to clarify what is meant, if he or she does not bypass the issue altogether by assuming the reader knows what computer literacy is. Clarification is necessary mainly because there simply is no one universal definition of the term. Computer educator Arthur Luehrmann, who came up with this particular choice of words to refer to the wave of the future, defines computer literacy as "the ability to do computing and not merely to recognize, identify or be aware of alleged facts about computing" but this definition is not operable in all considerations of the subject. In fact, the term computer literacy is used so generally that people often preface references to microcomputers in education with their own definitions of computer literacy.

Definitions range from assigning basic to conclusive connotations that mention hardware and software, programming, instruction, interaction, history, social implications, application and usage, and so on. The ability to do is not always inherent in

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the definition although it is naive to suggest a student may become computer literate without hands-on experience. Disparities between "learning with" or "learning about" computer literacy are thus integral to most references. The matter is further complicated when one stops to ask how someone can learn with or learn about "computer literacy" when it seems logical to assume that computer literacy should be an outcome of learning with or about computers and not an instructional means unto itself. It is evidently sometimes useful to skirt logic because of the nature of the computer.

Writers are not entirely at ease with using computer literacy in discussions of the microcomputer. Semantic variety occurs in articles when they refer to computer literacy as "a basic skill," "a phenomenon," "a new area of knowledge," "a sort of knowledge," "a fourth basic skill," "a new type of understanding," "a subject," "a key," "a broad-based understanding," and "an ability," to include a few examples. Computer literacy is judged as something students must have "familiarity with" or "be provided" as it "promotes" learning "with" and "about." Computer literacy offers "components," "content," "topics," "activities," and it promises to become "widespread."

Central to this semantic organization is a problem of deciding how to integrate knowledge of and knowledge about, not to mention knowledge through, the computer into the conceptual organization of knowledge in general. We want our students to know how to use the microcomputer; we also want them to know about computers; and

we certainly want them to develop appropriate attitudes toward the role of the computer in society to avoid too many of the escapades computer whiz kids have gotten into lately with their home computers. Consequently, our efforts to introduce the microcomputer into the curriculum are encouraging careful discussions of just exactly what computer literacy is, can be, or should be. These discussions are a healthy indication of educators' commitment to organizing knowledge in ways that may be accessible in what is ultimately offered to students.

Microcomputers being innovative as they are, just recently available for educational consumption on a large scale and lauded by educators on national and local levels, the "computer literacy" debate is to be expected. As microcomputers are widely introduced into school systems, with teachers and administrators responding to suggestions made by The National Commission on Excellence in Education, The Paideia Proposal, the Carnegie Report, and other study groups, the controversy will continue as knowledge relating to and imminating from computers eventually is encompassed or anchored by curricular frameworks. The necessary dialogue will focus on the question of whether to integrate or isolate, to learn with or to learn about, or to adopt a variety of ways of approaching the knowledge facilitating this modern literacy.

The accompanying confusion is, I think, correlated to the rhetorical usage of the term computer literacy. As a teacher interested in composition as much as computers, I think it will

be interesting to watch the evolution of computer literacy as people become more secure employing the phrase. Attending to the emergent discourse may constitute an introduction to an inevitable analysis of this evolution, just as studying the clarifications and ambiguities central to current discussions of computer literacy may introduce us to the ways educators are dealing with the so-called "fourth basic."

Exactly why, for example, has literacy become the catchword for the state of knowing something, whatever that something is, about computers? Up until recently, before we began wondering if students should become computer literate and were crying out more loudly about just plain literacy, literacy suggested the ability to read and write. Beyond that basic assumption, it also meant literate people were well-educated, knowledgeable people. This definition is still sound. As needs for different kinds of knowledge follow societal changes, however, the meaning of well-educated alters. Edmund Berkeley goes so far as to suggest that in this age "it is appropriate to assert that a man may be classified as educated only if: 1) he has some knowledge of computers and 2) he considers that he can know and understand computers to some extent."¹

If Berkeley's definition of educated holds true, then we might wonder why it is necessary to say "computer literate" when

¹ Edmund Berkeley, "Computers, and an Educated Man." Computers and People 32 (January-February 1983): 6.

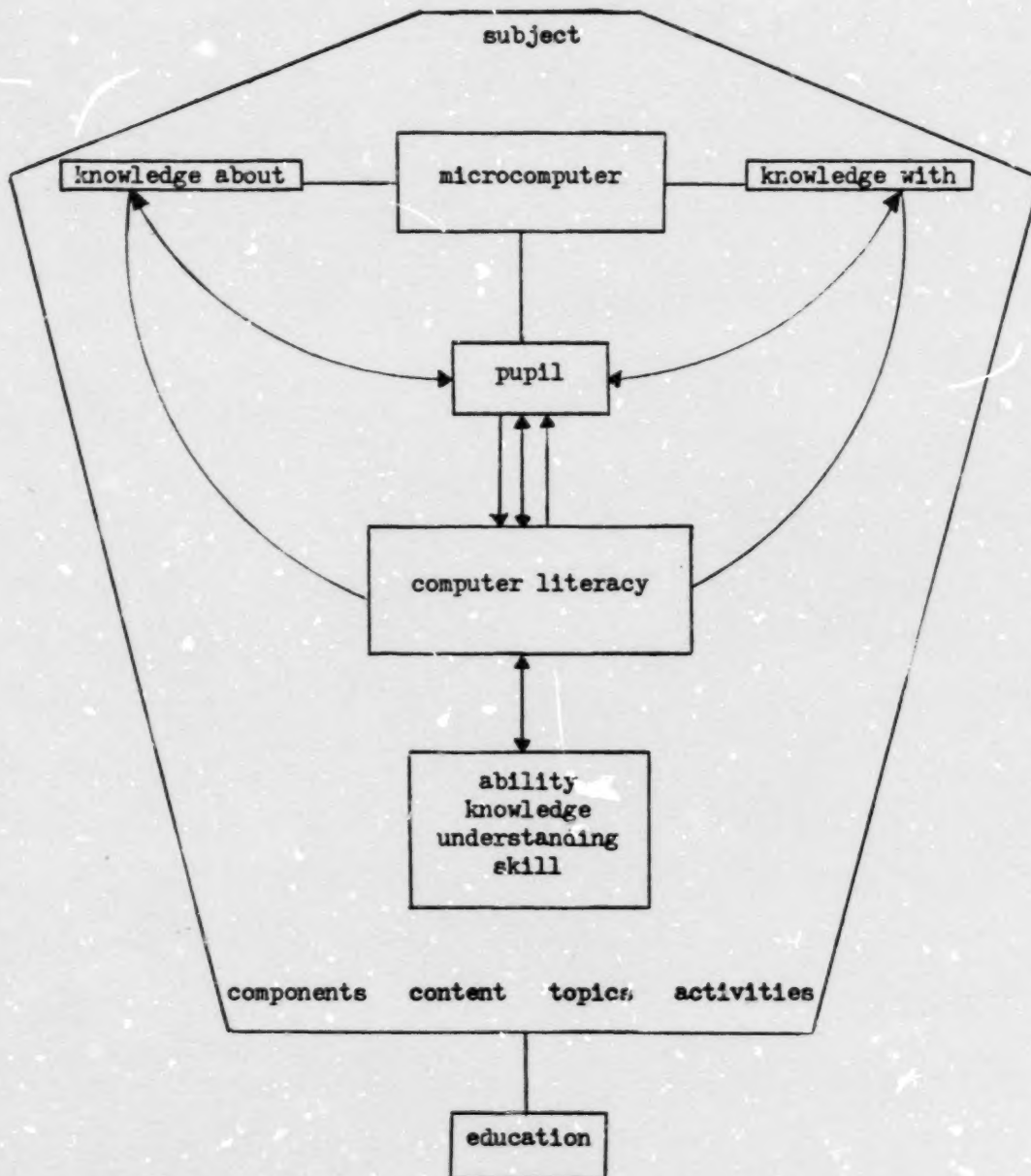
"literate" in the information age will encompass "knowledge of computers." The redundancy obviously stands because this definition is not comfortable to people who need time to qualify a new element of literacy as "computer" literacy, although we seldom speak of math literacy, language literacy, or reading literacy with as much emphasis on the qualifying adjective as when we speak of computer literacy. Literacy usually pertains to the traditional basics collectively mastered to the degrees that society deems necessary so if knowledge with, about, or from computers indeed goes to comprise a fourth basic the need to say "computer literacy" will abate. Right now the term serves to reinforce subliminally a connotation people such as Berkeley are already prepared to believe in.

In addition, "computer literacy" is presently uncomfortably aligned with the assumption that it is itself a basic in the same class as the traditional basics. To call it a basic, though, is to indicate that computer literacy may function as a subject and not, as I mentioned earlier, as an outcome of learning something. Although the National Commission calls its fourth basic "computer science," not all educators refer to the microcomputer's role in the schools as a science and some call the fourth basic "computer literacy." Computer science is not synonymous with computer literacy and does sound more like the actual name of a basic but there must be a reason behind the insistence that "computer literacy" is assigned to the fourth basic. This reason is implicit in the

debate on whether or not to allow microcomputers to become known through curricular association with standard subjects or in and of themselves as well as in the consideration of what to call the new knowledge once we figure out what it is and where it belongs.

While schools across the nation are on the way to implementing courses designed to introduce computer literacy, the avoidance of always calling these courses "science" seems to be due to the fact that it may be more difficult to convince students and parents of the need for a science than for a certain acquaintance with the multi-level implications of the microcomputer as it revolutionizes education and society. The microcomputer must exist as a diverse component of knowledge as it is both an entity unto itself and a complementary instrument. Remember when McLuhan said, "The medium is the message" not so long ago? He was preparing us for the advent of a time when traditional conceptions of knowledge would be turned upside down, inside out, and sideways. Any rhetorical confusion resulting from our attempts to deal with this phenomenon is natural, insightful, and necessary to maintain the dialogue that will develop our understanding of the microcomputer's impact on knowledge and education.

Charting The Ambiguity
A Graphic Representation Of References
To Computer Literacy In Educational Literature



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